TAK PROGRAMMABLE ROTARY WIRE STRAIGHTENER OPERATION MANUAL

Power On & Confirmation of Settings:

General – The power input point for the TAK RWS System is located in the main utility cabinet and channeled to the operating devices and operator interface. Power necessary is 208/220 VAC 3Ph on a 20A circuit.
Upon first power up of the system the Operator Interface Screen will display any system fault messages and wait until the faults are corrected and the operator touches the ***"reset"*** section on the touch screen.

Due to the extreme versatility of this feed system and software all instructions are written to convey the most general operation of the system. Many options and add-on features are available and not described or addressed in this manual but personal assistance is available from TAK on all features or applications.

Warning - Be sure to check all settings for the current job before allowing the RWS System to proceed with any operations! If this is a new job please see the section on entering job parameters.

TAK PROGRAMMABLE ROTARY WIRE STRAIGHTENER

OPERATION MANUAL

SCREEN DESCRIPTIONS FOLLOW:

MAIN SCREEN:

This is the first screen visible after the system is powered up or has encountered a power interruption. On this screen you will be able to access the remainder of the system.
The bar/text area at the bottom of the screen will display any error/alarm messages from the system.

Starting from left to right:

1. ***Setup;*** will bring you to the screen where system operational parameters are viewed and input.
2. ***Alarms;*** will bring you to the screen to view existing and logging of past system and device alarm messages.
3. ***Run;*** will bring you to the screen where you will be able to run the system and monitor the functions of the system.

Initial System Setup;

Threading up the RWS System:

1. Check to be sure that the power is "***on"***.
2. From the main startup screen "***Reset***" all error messages & press the "***setup***" screen button.
3. Remove the plastic safety interlock cover in front of the drive rolls and unlatch the interlock safety cover over the rotating spindles. When in the "***setup"*** screen the safety interlock cover fault messages are not displayed.
4. Move the "wire out" and "wire break" sensor arms to the open or "up" position.
5. Remove any remaining wire from the system by carefully pulling it out of the rotor and feed sections of the system.
6. If required attach a new spool of material to the system payoff.
7. Proceed to thread the wire through the rotor section by hand feeding the wire and inch or so at a time.

8. Continue with feeding the wire through the drive guides, between the drive rolls and on into any other attached devices.
9. Once the wire is through the system, activate the drive roll clamping to "***close***" so that the upper drive wheel comes down onto the wire and adjust the pressure as required.
10. If the wire did not "hang up" during threading then you can continue to feed it forward through the system using the "***jog***" function until it is observed in a starting position for the process being performed.
11. All attached external devices should be cycled for operation.
12. Recheck the wire path all the way back to the payoff spool to ensure that the wire is free to be fed.
13. Rotate the "wire out" and "wire break" sensor arms down to ride on the wire.

Replace the plastic safety cover and rotor safety cover. The system is now ready to run.

Light Curtain Safety Option;

Start up;

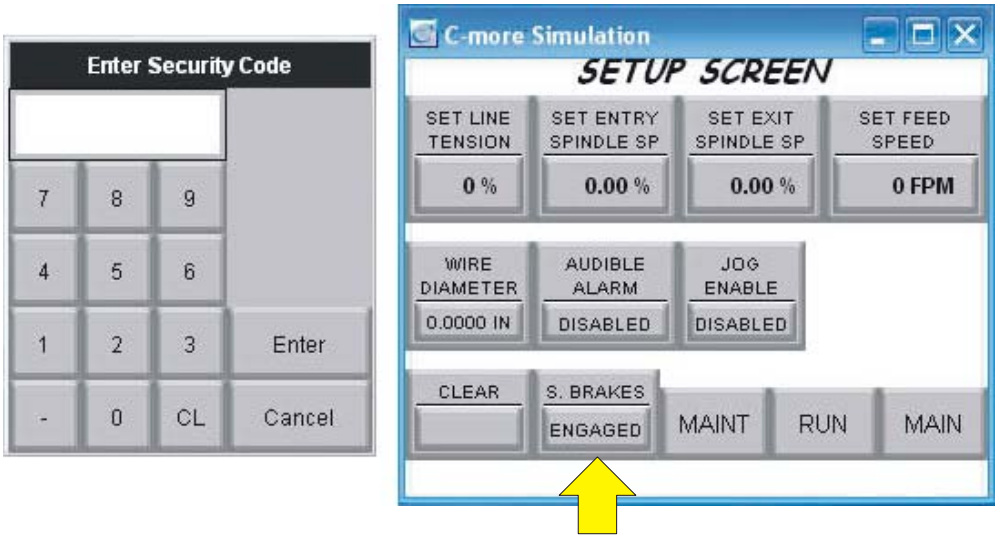
When the unit is started from a complete power down, the "Blanking" reset button on the upper left side of the operator control box will have to be depressed to activate the light curtain learning function to accept the equipment in the light beams and not go to a fault condition. You will be able to see the system reset and become functional by watching the bottom section of the right rear light column upper indicator light change to blue.

Running;

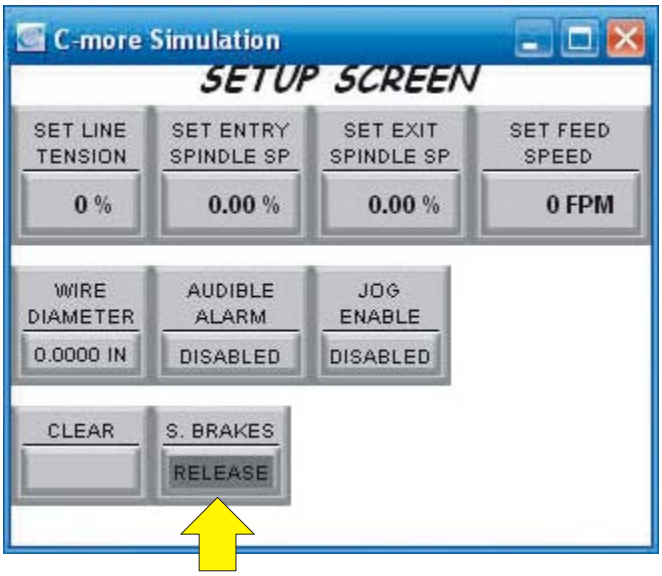
During running or any operation of the system where the light beams are broken, error messages will appear on the operator screen and a "System Reset" will be necessary using the system reset button on the lower left side of the operator control box. After clearing the error messages and resetting the system it will be able to operate again.

If the system is equipped with the optional light curtain safety barriers a few other steps are necessary to perform the wire thread up procedure.

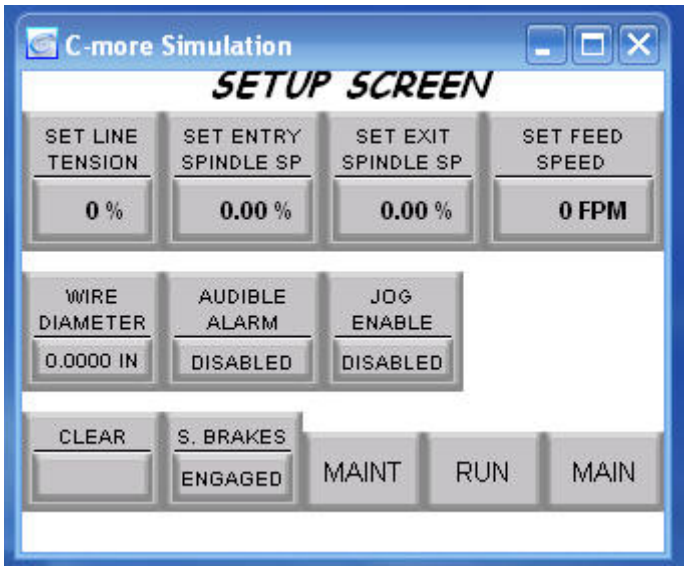
1. Following the step #3 from the initial thread up process, you will have to disengage the spindle brakes so they can be rotated to access the adjusting screws and clamping ring screws.
2. At the lower left section of the setup screen is the "Engage & Disengage" button for the spindle brakes. When the button is depressed a password protected screen will popup with a keypad.



3. After entering the password (6742) the brakes will disengage and the "Maint, Run & Main" buttons will disappear for either 2 minutes or after the button is pressed again to cycle to "Engaged". If adjustments are not completed within the 2 minute window and the spindles lock, pressing the button and entering the password again will get another 2 minutes, this can be repeated as many times as required.


C-more Simulation
SETUP SCREEN
SET LINE TENSION
0 %
SET ENTRY SPINDLE SP
0.00 %
SET EXIT SPINDLE SP
0.00 %
SET FEED SPEED
0 FPM
WIRE DIAMETER
0.0000 IN
AUDIBLE ALARM
DISABLED
JOG ENABLE
DISABLED
CLEAR
S. BRAKES
RELEASE

SETUP SCREEN:



This screen is the center of the system operational parameters. From this screen it is possible to setup the machine to function manually or input key values that the machine needs to work correctly.

Set line tension;

By pressing this button a keypad will popup and it is possible to set the wire back tension entering the system. The range is from 0 to 35 in/lb in a range of 0% to 100%.

Set entry spindle speed;

By pressing this button a keypad will popup and it is possible to set the speed of the entry spindle. The range is from 0 to 11,000 RPM in a range of 0% to 100%.

Set exit spindle speed;

By pressing this button a keypad will popup and it is possible to set the speed of the exit spindle. The range is from 0 to 11,000 RPM in a range of 0% to 100%.

Set feed speed;

By pressing this button a keypad will popup and it is possible to set the speed of the feed unit. The system feed speed range can be set from 0 to 100 feet/minute.

Wire Diameter;

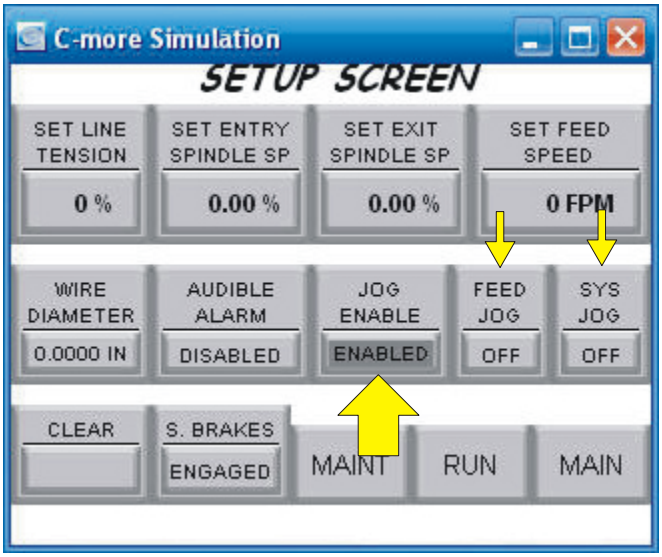
By pressing this button a keypad will popup and it is possible to set the wire diameter. By setting the correct wire diameter here and the correct wheel diameter in the “Maint.” Screen, the unit will calculate the feed speed and processed total for the wire being used.

Audible Alarm;

By pressing this button it is possible to engage or disengage the audible alarm function.

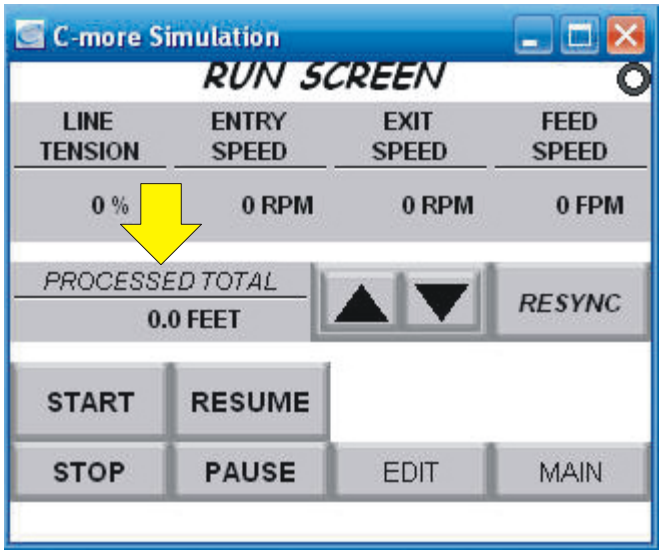
Jog Mode;

The jog mode is engaged or disengaged by pressing this button. The jog mode has (2) functions, after pressing the jog button (2) additional buttons appear. First is the feed jog and second is the system jog. The speed for the feed jog function is picked by entering a value in the "Set feed speed" function detailed above. System jog values are also set using the above detailed instructions for spindle speed and feed speed.



Clear Button;

By pressing this button you will clear the running total feet processed since the last clear. This total is found on the "Run" screen as shown below.

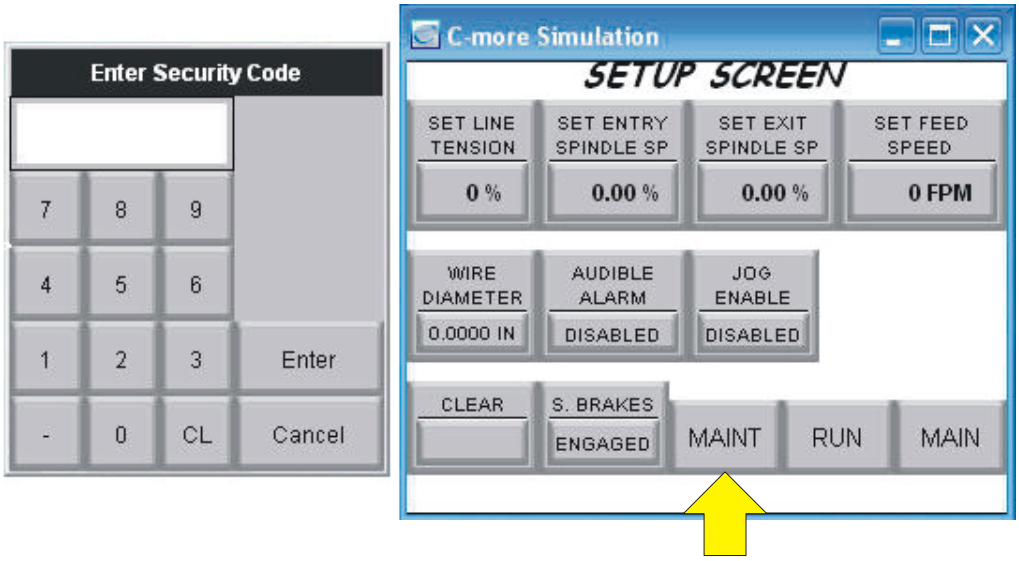


Spindle Brakes;

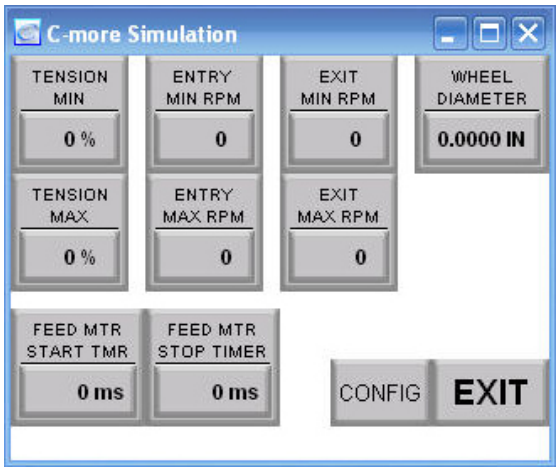
When the button is pressed the spindle brakes "Engage or Disengage" so they can be rotated to access the block adjusting screws or the retaining ring locking screws.

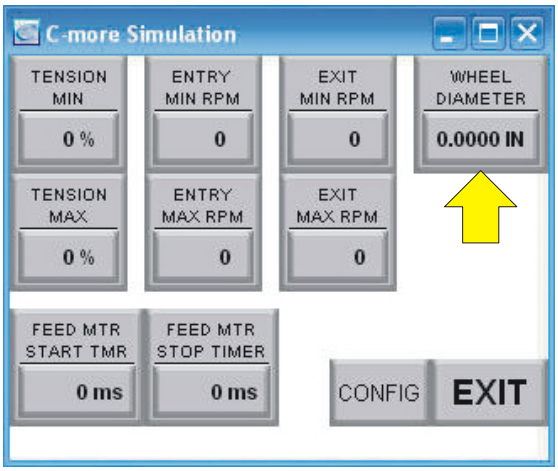
MAINT;

This button will access the core system maintenance screen. This button will popup a password access screen and is only accessible by TAK or designated engineering personnel and the password is available @ TAK.



** TAK default wheel diameter is 2.5000**





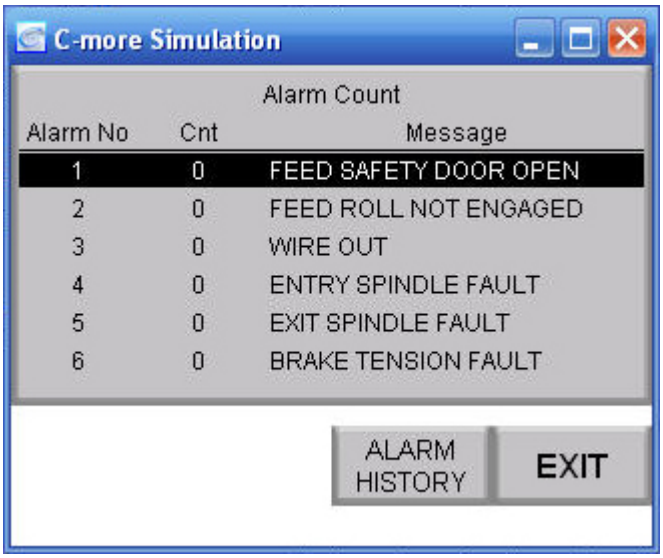
RUN;

By pressing this button you will be taken to the run screen.

MAIN;

By pressing this button you will be taken to the main intro screen.

Alarm Screens;

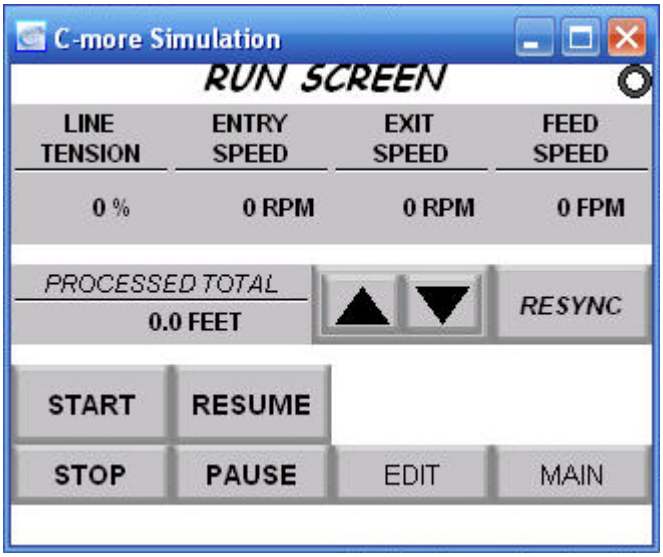


By pressing the “Alarm” button on the main screen you will be shown the alarm screen (shown above) showing the actual alarms since last cleared and the number of times that alarm has been recorded.

By pressing the “Alarm History” button on this screen you can get detailed information on each alarm posted.

Run Screens;

By pressing the “Run Program” button on the main screen (shown above) you will be taken to the run screen showing the system running status.



From this screen you will be able to monitor the operation of the RWS and change system running parameters on the fly.

Line Tension;

This area shows the set line tension that was entered on the setup screen.

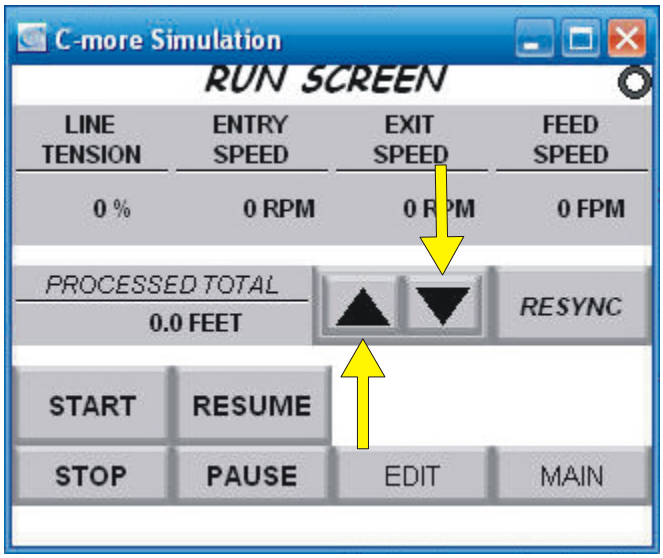
Entry Speed;
This area shows the entry spindle speed that was entered on the setup screen.

Exit Speed;
This area shows the entry spindle speed that was entered on the setup screen.

Feed Speed;
This area shows the feed speed that was entered on the setup screen.

Processed Total;
This area shows the approximate number of feet of wire processed since the last “Clear” described in the setup screen section.

Up & Down Arrows;



By pressing either of these buttons, it will increase or decrease the speed of the exit spindle and the resulting speed will be shown on the section above.

ReSync;
At any time, if you wish to reset the exit spindle RPM back to being in sync with the entry spindle just press this button.

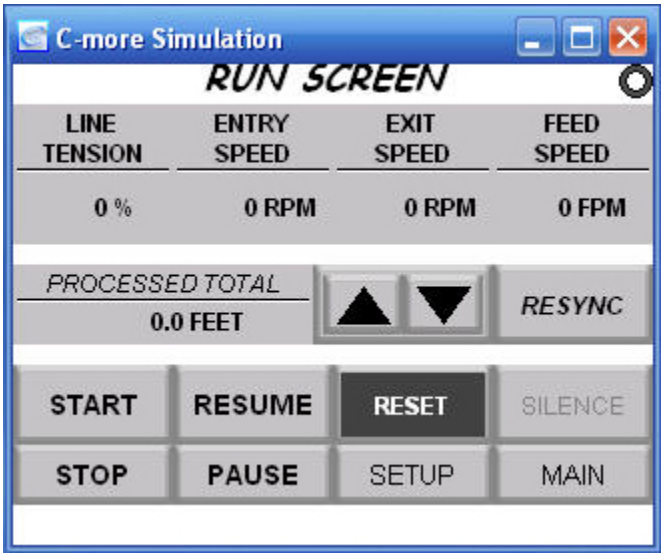
Start;
Pressing this button will start the system. The system is preset with a delay between the start of the feed and the spindle start. This means that the feed will always start before the spindles.

Stop;
Pressing this button will stop the system. The feed and spindles will stop together.

Pause;
Pressing this button will pause the system. The system is preset with a delay between the stop of the feed and the spindle stop. This means that the feed will always stop after the spindles.

Resume;
Pressing this button will restart the system. The system is preset with a delay between the start of the feed and the spindle start. This means that the feed will always start before the spindles.

Reset;



Pressing this button will reset the system alarm messages.

Silence;
Pressing this button will silence the audible alarm if the system is equipped with this feature.

Setup;
This button will bring you to the setup screen.

Main;
This button will bring you to the main intro screen.

WARNING

The operator of the equipment offered herein must not be in or near the point-of–operation of any such machine or operating parts of any equipment installed on a machine, or bodily injury could result. The EMPLOYER must conspicuously display adequate warning signs on the machine with proper warnings for the machine and the specific application to which the machine and equipment are being applied.

OSHA Sections 1910.147, 1910.211, 1910.212 and 1910.217 contain installation information on the required distance between danger points and point-of-operation guards and devices. No specific references have been made to which paragraph of OSHA 1910.147, 1910.211, 1910.211, 1910.217 or any other applicable sections because the paragraphs may change with each edition of the publications of OSHA provisions.

All equipment manufactured by TAK Enterprises is designed to meet the construction standards of OSHA in effect at the time of sale, however, the EMPLOYER ultimately installs the equipment and is therefore responsible for installation, use, application, training and maintenance, as well as ensuring that adequate warning signs are visible on the machine onto which the equipment will be installed.

OSHA states that the EMPLOYER must ensure that safe operating methods designed to control or eliminate hazards to operating personnel are developed and employed, and that operators are trained in safe operation of the equipment.

It shall be the responsibility of the EMPLOYER to establish and follow a program of periodic and regular inspections and maintenance of machinery to insure that all their parts, auxiliary equipment and safeguards are in a safe operating condition and adjustment. Each machine should be inspected and tested no less than weekly to determine and confirm that the operating condition of the machine meets safety standards. Necessary maintenance or repairs to machinery, auxiliary equipment and safeguards shall be performed and completed before the machine is operated. The EMPLOYER shall maintain accurate records of these inspections and maintenance work performed.

It is not the responsibility of TAK Enterprises to provide notification to the user of this equipment concerning future changes in State or Federal laws, or construction standards.

SAFETY PROGRAM

Accident free operation will result from a well developed, management sponsored and enforced safety program.
Of vital importance to the success of a safety program is the proper selection of guards and devices. However, there is no safety device that will insure “automatic” or “fool proof” safety to your operation.

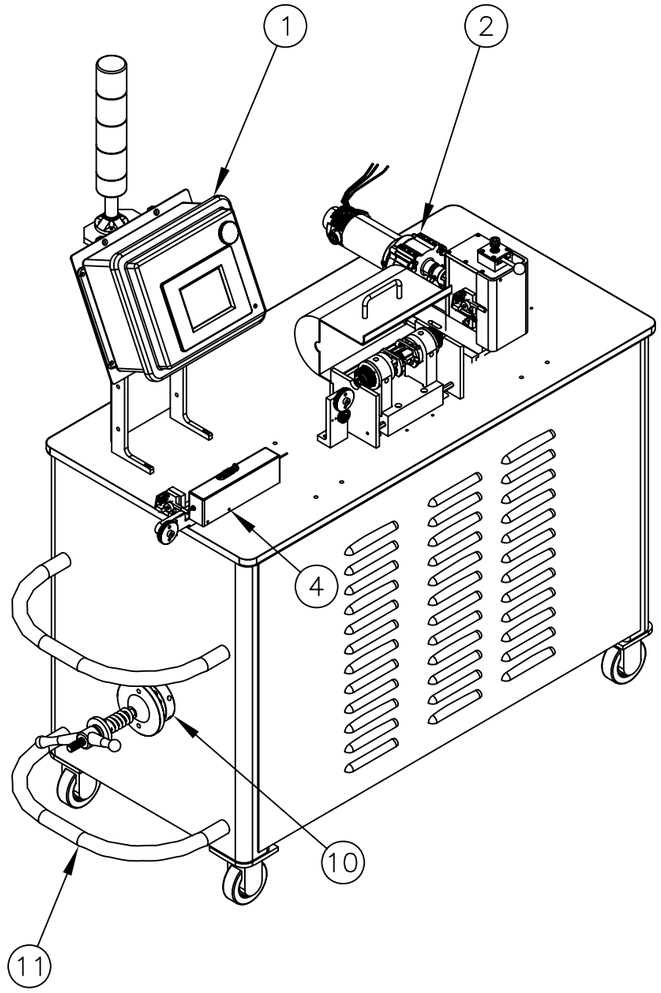
Of equal importance to the proper selection of machine guards and devices is effective training of operating personnel. Each individual must be trained in the proper operation in accordance with established standards developed for the guards or safety devices employed, with emphasis on why specific guards and safety devices have been provided on the equipment. Rules for safe operation should be in writing, available to company personnel and enforced at all times.

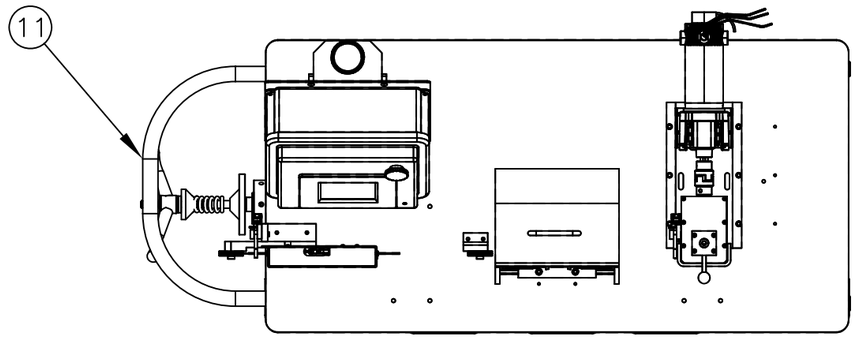
An effective safety program must include regularly scheduled inspections and maintenance of all equipment, with accurate records to reflect the successful completion of inspections and maintenance.

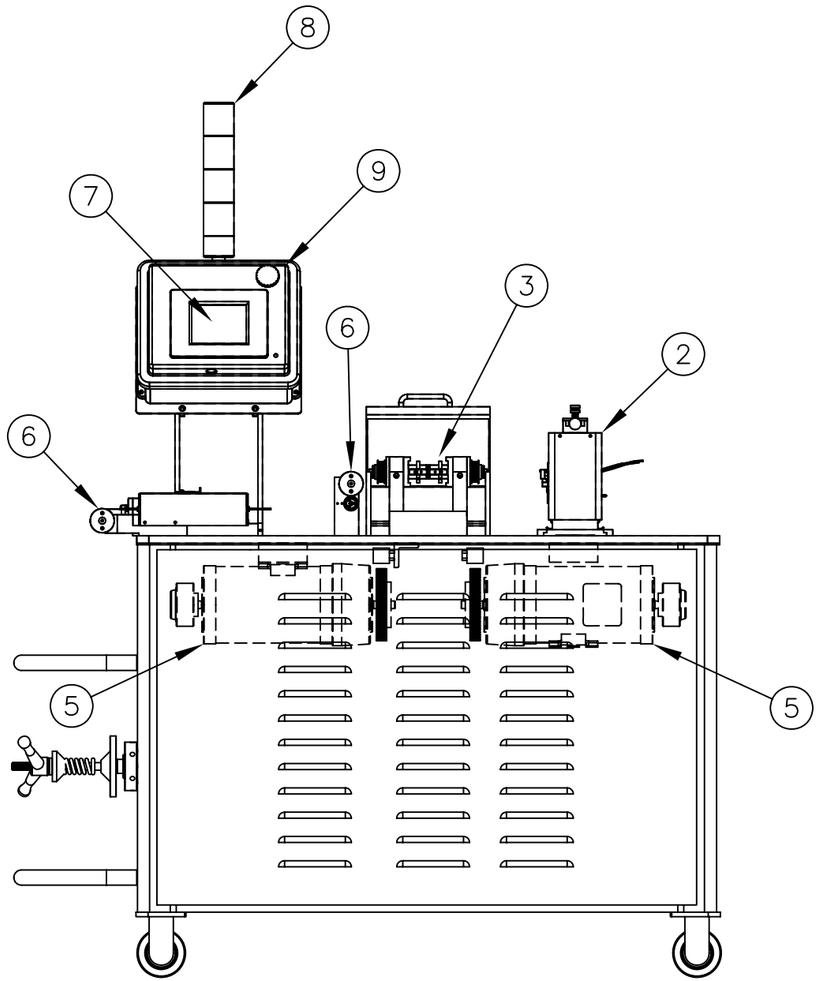
To ensure that a safe working environment is maintained at all times, management, supervisors, safety engineers and all production employees must assume their proper share of responsibility to establish and maintain an effective safety program. All members of the company community should be involved so that an accurate view of the specific areas within the facility that require attention are addressed.

To assist you in the development of and maintenance of an effective safety program, many trade groups and safety related organizations provide guidelines and recommendations that are available to you. However, you must know when and how to apply these guidelines. The equipment manufacturers provide information to assist you in properly adjusting and maintaining your equipment. It is recommended that the employer comply with these guidelines at all times.

MATERIAL REQ'D.	R.C.







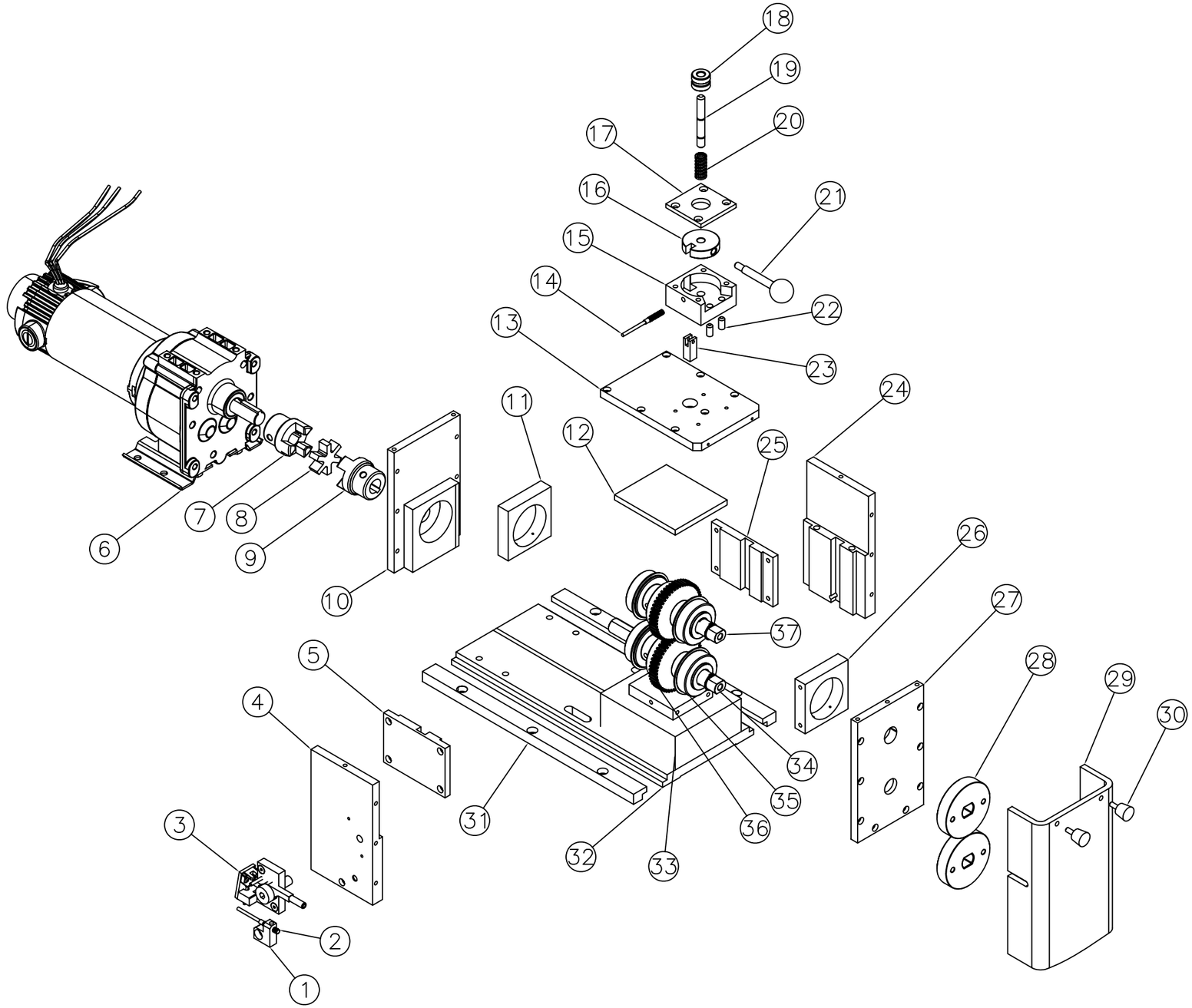
PART LISTING			
#	PN #	DESCRIPTION	QTY
1	6100–005	RWS CONTROL PANEL ASSY	1
2	6100–002	RWS FEED ASSEMBLY	1
3	6100–004	RWS ROTOR ASSEMBLY	1
4	7100–001	WCL ASSEMBLY	1
5	6100–006	RWS SPINDLE DRIVE ASSY	2
6		PINCH WHEEL ASSY	1
7	9700–025	TOUCH SCREEN	1
8	9103–008	STACK LIGHT	1
9	6100–005	CONTROL PANEL ASSY	1
10	6100–003	TENSION CONTROLLED PAYOFF	1
11		SAFETY BARRIER	2
12			
13			
14			
15			

REV	ECN	CHG BY	DATE

TAK ENTERPRISES

TOLERANCE UNLESS OTHERWISE STATED			
∠ ± 3'	FRACT +/– 1/16	CAD	DRAWING / PART NO. 6100–001
⊥ ± 0.0003	.X ± .032	DWN GDH	PART NAME ROTARY WIRE STRAIGHTENER
◎ ± 0.0002	.XX ± .015	CHK	
⌖ ± 0.0005	.XXX ± .005	SCALE	CUSTOMER
= ± 0.0005	.XXXX ± .0005	DATE 031008	

MATERIAL REQ'D.	R.C.



PART LISTING			
#	PN #	DESCRIPTION	QTY
1	4300–124	SENSOR BRACKET	1
2	9100–062	PROX SENSOR	1
3	4300–209	WIREOUT SENSOR ASSY	1
4	6100–204	LEFT SIDE FEED PLATE	1
5	6100–209	UPPER SIDE PLATE	1
6	9100–062	GEAR MOTOR	1
7	9201–006	COUPLING BODY	1
8	9201–007	COUPLING SPYDER	1
9	9201–006	COUPLING BODY	1
10	6100–206	REAR FEED PLATE	1
11	6100–210	UPPER REAR PLATE	1
12	6100–202	UPPER PRESSURE PLATE	1
13	6100–201	FEED TOP PLATE	1
14	9100–062	PROX SENSOR	1
15	6100–217	CLAMP HOUSING	1
16	6100–218	CLAMP CAM	1
17	6100–215	CLAMP TOP PLATE	1
18	9010–043	KNURL LOCK NUT	2
19	6100–216	CLAMP CENTER SHAFT	1
20	9020–043	SPRING	1
21	9010–037	KNOB HANDLE	1
22	9011–016	BALL PLUNGER	2
23	6100–214	CLAMP ACTUATOR SHAFT	1
24	6100–205	RIGHT SIDE FEED PLATE	1
25	6100–209	UPPER SIDE PLATE	1
26	6100–210	UPPER FRONT PLATE	1
27	6100–203	FEED FRONT PLATE	1
28		FEED ROLLS	2
29	6100–200	SAFETY COVER	1
30	9010–005	PLASTIC KNOBS	2
31	6100–211	BASE SLIDE GUIDES	2
32	6100–212	FEEDER SLIDE BASE	1
33	6100–213	FEED BASE	1
34	6100–208	LOWER FEED SHAFT	1
35	9310–012	SHAFT BEARING	4
36	9201–032	SPURR GEAR	2
37	6100–207	UPPER FEED SHAFT	1
38			
39			

REV	ECN	CHG BY	DATE

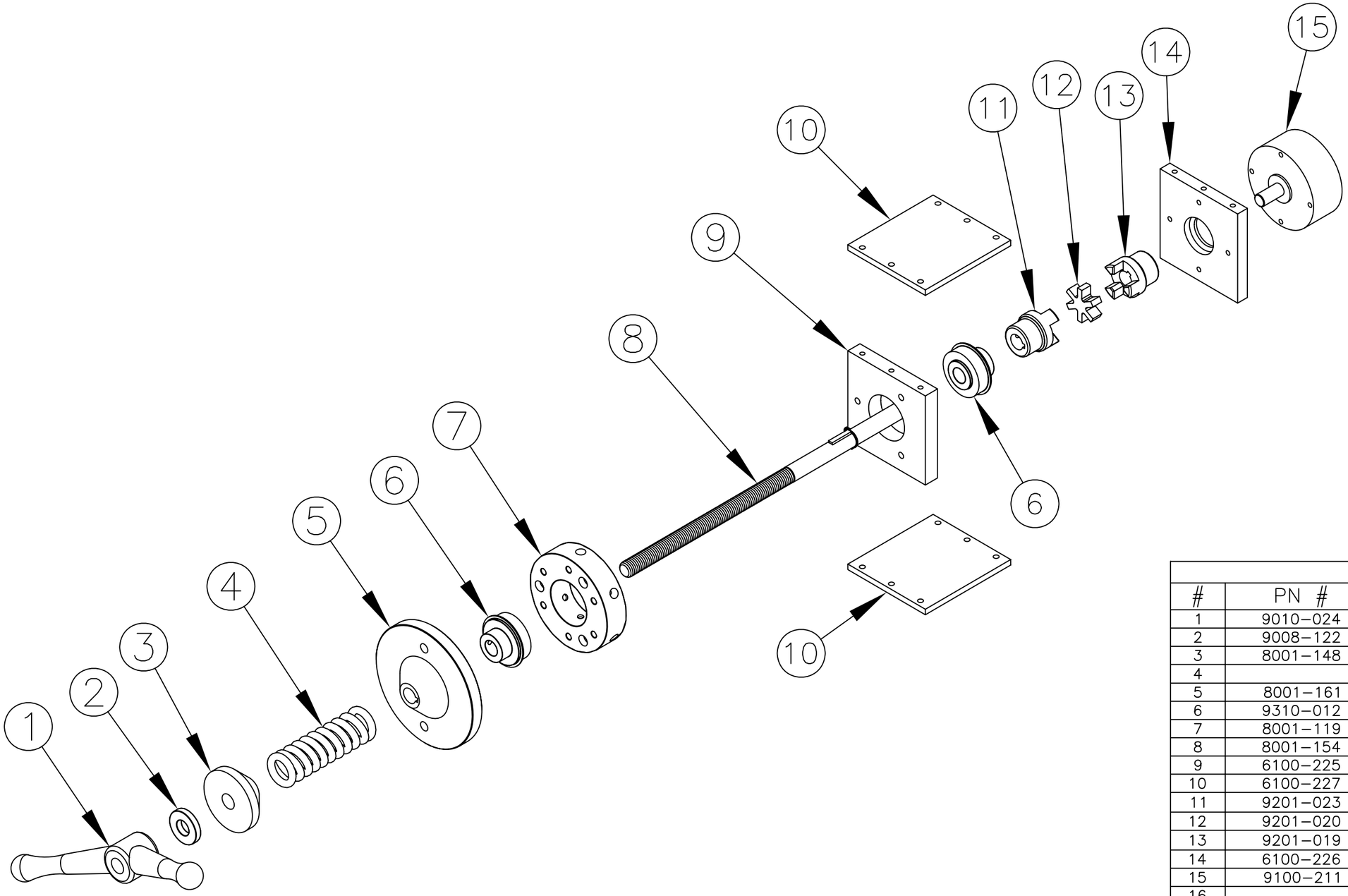
TAK ENTERPRISES

TOLERANCE UNLESS OTHERWISE STATED
∠ ± 3°
⊥ ± 0.0003
◎ ± 0.0002
⌖ ± 0.0005
= ± 0.0005
FRACT +/- 1/16
.X ± .032
.XX ± .015
.XXX ± .005
.XXXX ± .0005

CAD
DWN GDH
CHK
SCALE
DATE 031408

DRAWING / PART NO. 6100–002
PART NAME RWS FEED ASSEMBLY
CUSTOMER

MATERIAL REQ'D.	R.C.



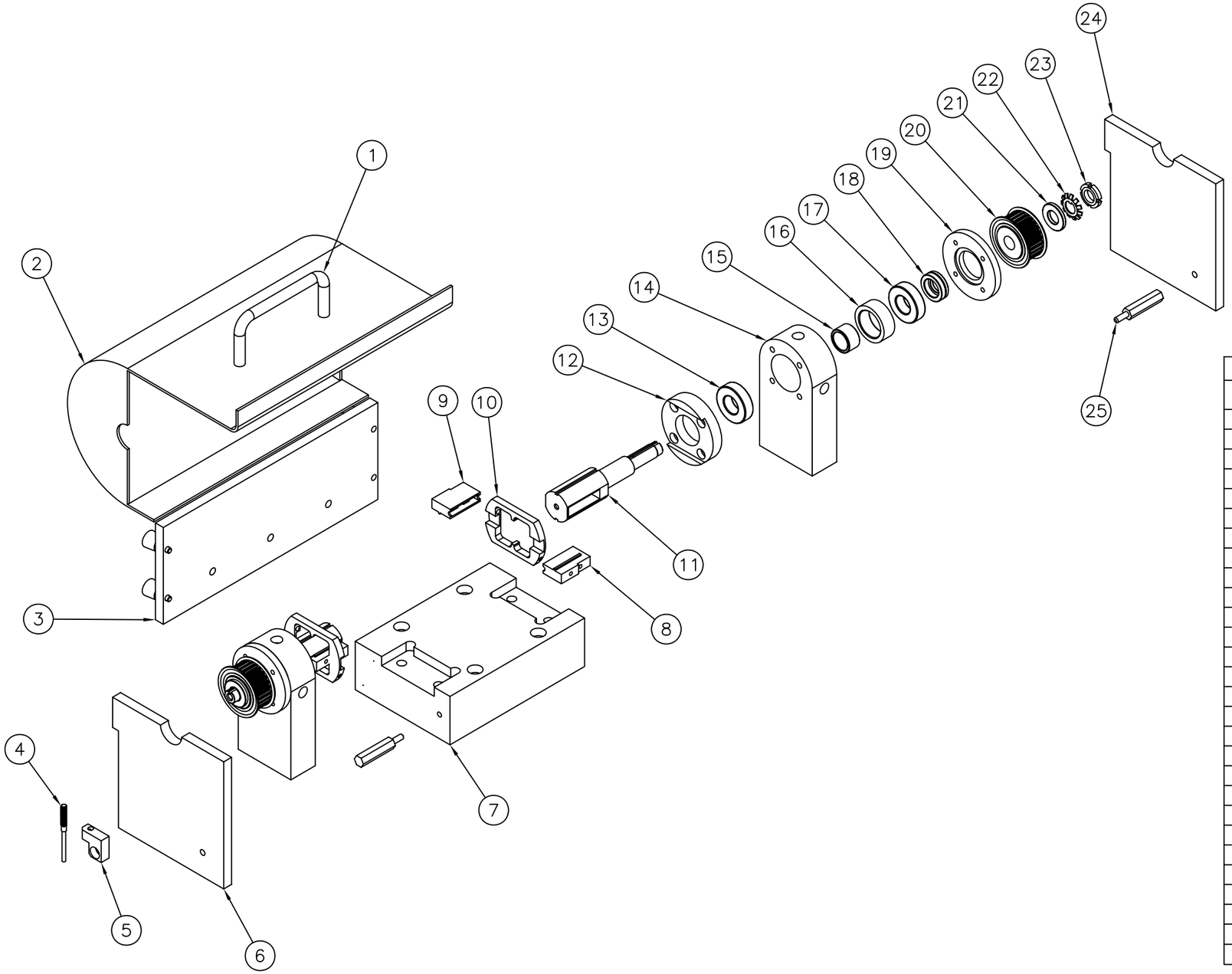
PART LISTING			
#	PN #	DESCRIPTION	QTY
1	9010–024	SPEED HANDLE	1
2	9008–122	HARD WASHER	1
3	8001–148	SPOOL WEDGE	1
4		SPRING (OPTIONAL)	1
5	8001–161	TAPER SPOOL HUB	1
6	9310–012	SHAFT BEARING	2
7	8001–119	RETAINER HUB	1
8	8001–154	MAIN SHAFT	1
9	6100–225	INNER MOUNTING PLATE	1
10	6100–227	BRAKE MOUNT TIE PLATES	2
11	9201–023	COUPLING BODY $\frac{5}{8}$"	1
12	9201–020	COUPLING SPYDER	1
13	9201–019	COUPLING BODY $\frac{1}{2}$"	1
14	6100–226	BRAKE MOUNT PLATE	1
15	9100–211	MAG PARTICLE BRAKE	1
16			

REV	ECN	CHG BY	DATE

TAK ENTERPRISES

TOLERANCE UNLESS OTHERWISE STATED				CAD	DRAWING / PART NO. 6100–003
∠ ± 3'	FRACT +/– 1/16			DWN GDH	PART NAME TENSION PAYOFF
⊥ ± 0.0003	.X ± .032			CHK	
◎ ± 0.0002	.XX ± .015			SCALE	
⌖ ± 0.0005	.XXX ± .005			DATE 031108	CUSTOMER
═ ± 0.0005	.XXXX ± .0005				

MATERIAL REQ'D.	R.C.



PART LISTING			
#	PN #	DESCRIPTION	QTY
1	9010–044	COVER HANDLE	1
2	6100–111	SAFETY COVER	1
3	6100–110	COVER SUPPORT	1
4	9100–028	PROX SENSOR	1
5	4300–124	SENSOR BRACKET	1
6	6100–112	LEFT END PANEL	2
7	6100–108	ROTOR BASE	1
8	6100–104	2 POCKET ADJUSTING BLOCK	2
9	6100–103	3 POCKET ADJUSTING BLOCK	2
10	6100–102	ADJUSTING BLOCK RETAINER	2
11	6100–100	MAIN CENTER SHAFT	2
12	6100–105	INNER BEARING RETAINER	2
13	9310–021	SHAFT BEARING	2
14	6100–109	UPRIGHT ROTOR SUPPORT	2
15	9310–201	INNER BEARING SPACER	2
16	9310–203	OUTER BEARING SPACER	2
17	9310–021	SHAFT BEARING	2
18	9310–202	SHAFT SPACER	2
19	6100–106	OUTER BEARING RETAINER	2
20	9201–038	TIMING PULLEY	2
21	9008–151	SHAFT SPACER	2
22	9008–701	TOOTH LOCK WASHER	2
23	9008–702	SPANNER LOCK NUT	2
24	6100–112	RIGHT END PANEL	1
25	9011–015	STANDOFF	2
26	9010–005	PLASTIC KNOB	6
27	9010–031	COVER CLAMPS (NOT SHOWN)	2
28	9800–017	CERAMIC BLOCKS (NOT SHOWN)	10

REV	ECN	CHG BY	DATE

TAK ENTERPRISES

TOLERANCE UNLESS OTHERWISE STATED

∠ ± 3°	FRACT +/– 1/16		
⊥ ± 0.0003	.X ± .032		
◎ ± 0.0002	.XX ± .015		
⌖ ± 0.0005	.XXX ± .005		
= ± 0.0005	.XXXX ± .0005		

CAD

DWN GDH

CHK

SCALE

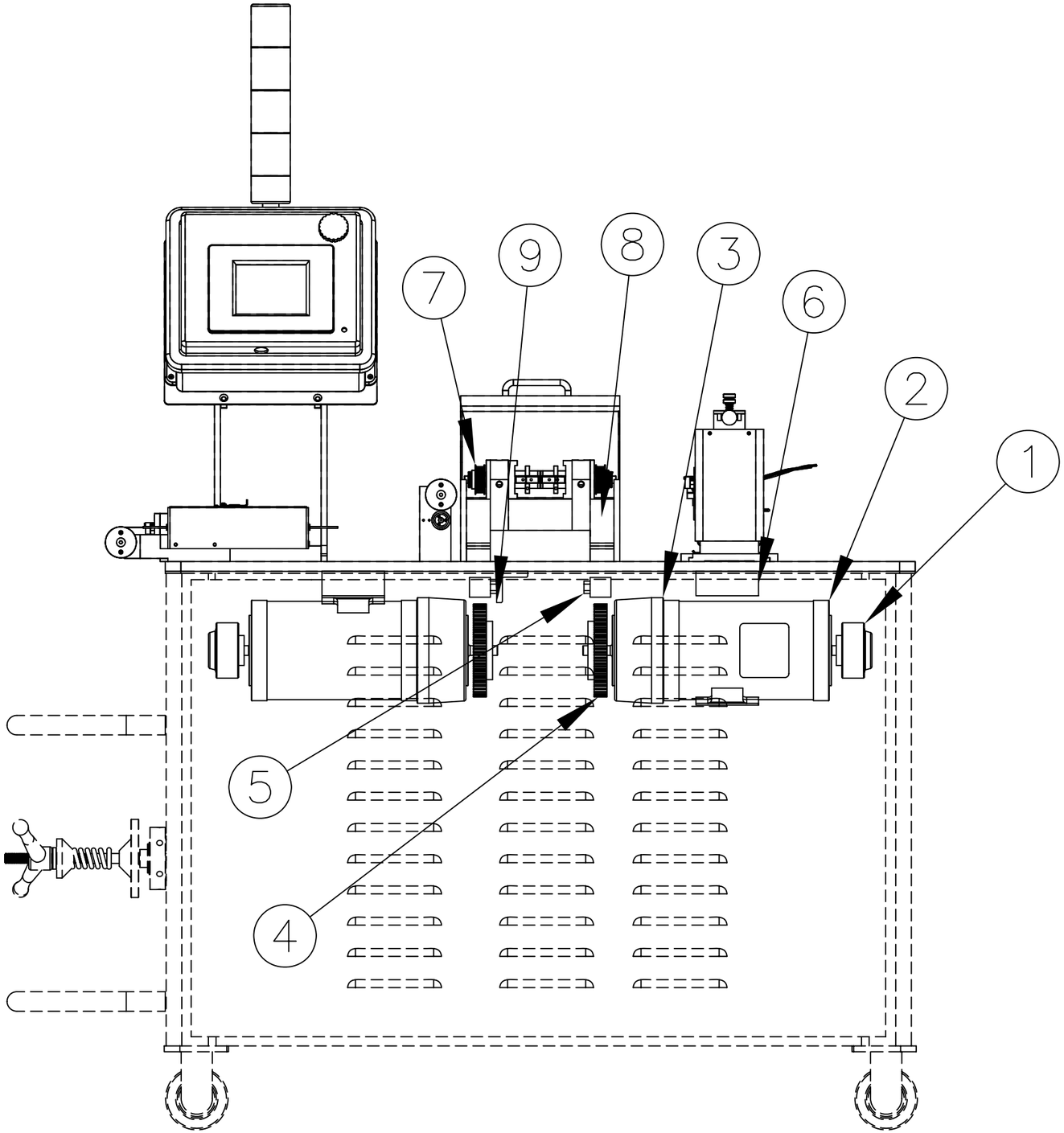
DATE 031208

DRAWING / PART NO. 6100–004

PART NAME ROTOR ASSY

CUSTOMER

MATERIAL REQ'D.	R.C.



PART LISTING			
#	PN #	DESCRIPTION	QTY
1	9100-066	ENCODER	2
2	9100-065	56C-FACE MOTOR	2
3	9100-067	MOTOR BRAKE	2
4	9201-037	TIMING PULLEY	2
5	9201-039	BELT TENSIONER	4
6	6100-117	MOTOR MOUNT	2
7	9201-038	TIMING PULLEY	2
8	9201-036	TIMING BELT	2
9	6100-116	TENSIONER BRACKET	2
10			
11			
12			
13			
14			
15			

REV	ECN	CHG BY	DATE

TAK ENTERPRISES

TOLERANCE UNLESS OTHERWISE STATED

∠ ± 3°	FRACT +/- 1/16		
⊥ ± 0.0003	.X ± .032		
◎ ± 0.0002	.XX ± .015		
⌖ ± 0.0005	.XXX ± .005		
= ± 0.0005	.XXXX ± .0005		

CAD	
DWN GDH	
CHK	
SCALE	
DATE 031108	

DRAWING / PART NO.
6100-006

PART NAME
SPINDLE DRIVE ASSY

CUSTOMER

REF: 349

REF: 349

REF: 424

REF: 424

400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424

FROM: 249

50 (24VDC)

I30+
I30-

I31+
I31-

DIPSWITCHES

OFF
OFF
ON
ON

1762-IF4

I30+ → CHL0 + 3N0+
I30- → CHL0 - 3N0-

I31+ → CHL1 + 3IN1+
I31- → CHL1 - 3IN1-

CHL2 + 3IN2+
CHL2 - 3IN2-

CHL3 + 3IN3+
CHL3 - 3IN3-

SLOT 3

TO:325

FROM: 249

51 (24VDC)

SPINDLE 1 AC DRIVE
SPEED RETRANSMISSION
4-20mA SIGNAL INPUT

SPINDAL 2 AC DRIVE
SPEED RETRANSMISSION
4-20mA SIGNAL INPUT

SPARE
4-20mA SIGNAL INPUT

SPARE
4-20mA SIGNAL INPUT

51 (24VDC)

TO: 325

425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449

FROM: 324

50 (24VDC)

PT-332
□40+
□40-

TT-113
□41+
□41-

TT-115
□42+
□42-

TT-115
□43+
□43-

1762-IF4

□40+ → CHL0 + 1N0+
□40- → CHL0 - 1N0-

□41+ → CHL1 + 1N1+
□41- → CHL1 - 1N1-

□42+ → CHL2 + IOUT0
□42- → CHL2 - COM

□43+ → CHL3 + IOUT1
□43- → CHL3 - COM

SLOt 2

TO:400

FROM: 324

51 (24VDC)

SPINDLE 1
SETPOINT
4-20mA SIGNAL OUTPUT

SINDLE 2
SETPOINT
4-20mA SIGNAL OUTPUT

TENSION BRAKE
CONTROL VARIABLE
4-20mA SIGNAL OUTPUT

FEED MOTOR
CONTROL VARIABLE
4-20mA SIGNAL OUTPUT

51 (24VDC)

TO: 400

REL	DATE	BY:	DESCRIPTION OF ISSUE	APP'D
3	1/22/09	DBM	START UP	DBM
2	12/18/08	JT	AS BUILT	JT
1	9/26/07	DBM	RELEASED FOR APPROVAL	DBM

Designed By: DM | Drawn By: DBM | Approved By: DBM

TAK

SPINDLE
SLOT 3 & 4
4-20mA

PACSYS LLC
65 CONTAINER DRIVE
PLYMOUTH INDUSTRIAL PARK
TERRYVILLE, CT 06786
U.S.A. 06782
(860) 583-6625

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TOLERANCES
.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 0° 30'
FRACTIONS ± 1/16

DESTROY ALL PREVIOUS PRINTS

SCALE: NONE

DWG #: 1593_33

SIZE: B

REL: 3

FROM: 224

FROM: 224

FROM: 324

FROM: 249

(24VDC+) 52

(24VDC-) 50

JB1 BROWN — CR — BLUE

JB2 BROWN — CR — BLUE

JB3 BROWN — CR — BLUE

1762-IQ8 DIGITAL_INPUTS

COM0 50

306	52 5CR I10	27 TB1	I10	I:1/0 — REMOTE START
307	JB2 J1 WHITE			
308	52 6CR 024	28 TB1	I11	I:1/1 — REMOTE STOP
309	JB2 J2 GREEN			
310		29 TB1	I12	I:1/2 — SPARE
311		30 TB1	I13	I:1/3 — SPARE

COM1 50

314	52 7CR I14	31 TB1	I14	I:1/4 — LOOP START
315	JB2 J3 YELLOW			
316	JB2 J4 GREY	32 TB1	I15	I:1/5 — LOOP STOP
318	JB1 J2 GREEN	33 TB1	I16	I:1/6 — FEED SAFETY COVER
320	JB2 J5 PINK	34 TB1	I17	I:1/7 — JOG: BUTTON/PEDAL

SLOT 1

52 → TO: 325

JB3 J1 BROWN	42 TB1	CR5+	5CR CR	CR5-	43 TB1 JB3 J1 WHITE
JB3 J2 BROWN	44 TB1	CR6+	6CR CR	CR6-	45 TB1 JB3 J2 GREEN
JB3 J3 BROWN	46 TB2	7CR+	7CR CR	7CR-	47 TB2 JB3 J3 YELLOW
JB3 J4 BROWN	48 TB1	1000	CR8	1001	49 TB1 JB3 J4 GREY

(24VDC+) 52

(24VDC-) 50

1762-OB8 DIGITAL_OUTPUTS

52 → 24V, C

O:2/0	O20 35 TB1	O20 3LT (Y) 50	RED	RED STACK LIGHT
O:2/1	O21 36 TB1	O21 1LT (G) 50	GREEN	GREEN STACK LIGHT
O:2/2	O22 37 TB1	O22 2LT (A) 50	BLACK	AMBER STACK LIGHT
O:2/3	O23 38 TB1	O23 1BZR 50	BLACK	BUZZER
O:2/4	O24	O24 4CR CR (2)(6) 50		50 SPINDAL BRAKE RELAY
O:2/5				SPARE
O:2/6				
O:2/7				SPARE

SLOT 2

52 (10) 4CR 028 (14)	40 TB1	BR		SPINDLE 1 BRAKE
52 (10) 4CR 029 (14)	41 TB1	BR		SPINDLE 2 BRAKE

REL	DATE	BY:	DESCRIPTION OF ISSUE	APP'D
3	1/22/09	DBM	START UP	DBM
2	11/18/08	JT	AS BUILT	JT
1	10/18/07	DBM	RELEASED FOR APPROVAL	DBM

Designed By: DBM | Drawn By: DBM | Approved By: DBM

TAK

SPINDLE CONTROL PLC EXPANSION IO

PACSYS LLC
65 CONTAINER DRIVE
PLYMOUTH INDUSTRIAL PARK
TERRYVILLE, CT 06786
U.S.A. 06782
(860) 583-6625

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TOLERANCES:
· X ± .1
· XX ± .01
· XXX ± .005
ANGLES ± 0° 30'
FRACTIONS ± 1/16

DESTROY ALL PREVIOUS PRINTS

SCALE: NONE

DWG #: 1593_32

SIZE: B

REL: 3

FROM: 149

FROM: 149

(24VDC)

(24VDC-)

52

52 10 TB1 — OIT — 4 TB1 50

OIT

11 TB1 — 3 4 — 16 TB1 — 55 1MCR CR 50 — 3 7

MASTER CONTROL RELAY POWER ON

1763-L16BBB DIGITAL_INPUTS

COM0

50 FE 3 4 I00 — 17 TB1 — I00 — I:0/0

FEED MOTOR ENCODER

50 DR1 13 14 I01 — I01 — I:0/1

SPINDLE 1 DR FLT

50 DR2 13 14 I02 — I02 — I:0/2

SPINDLE 2 DR FLT

50 MCR 13 14 I03 — I03 — I:0/3

POWER ON

COM1

52 SC 13 14 I04 — JB1 J2 GREY — 18 TB1 — I04 — I:0/4

ROTOR SAFTEY COVER

52 FE 13 14 I05 — JB1 J5 PINK — 19 TB1 — I05 — I:0/5

FEED ROLL ENGAGE

20 TB1 — I06 — I:0/6

SPARE

52 WO 3 4 I07 — JB1 J1 WHITE — 21 TB1 — I07 — I:0/7

WIRE OUT

22 TB1 — I08 — I:0/8

SNAG DE-COIL FLT

52 WB 13 14 I09 — JB1 J3 YELLOW — 23 TB1 — I09 — I:0/9

WIRE BRAKE

COM3

1V1+

1V2+

52 — 1 2 SC MCR-1 — (24VDC+) — 53 TO:225

(24VDC+) — 52 TO:300

50 (24VDC-) SPARE TO: 225

SPARE

SPARE

FROM: 224

FROM: 224

(24VDC+)

(24VDC-)

53

1763-L16BBB DIGITAL_OUTPUTS

24+

24- — 50

GND

53 V0 — O:0/0 — O00 — 1CR CR 50 — 3 7 — 50 — AC DRIVE SPINDLE 1 RUN

53 V1 — O:0/1 — O01 — 2CR CR 50 — 2 6 — 50 — AC DRIVE SPINDLE 2 RUN

NA

NA

53 V4 — O:0/2 — O02 — 3CR CR 50 — 3 7 — 50 — FEED MOTOR DC DRIVE

O:0/3 — O03 — 24 TB1

O:0/4 — O04 — 8CR CR 50 — 3 7 — 50

O:0/5 — O05 — 26 TB1

COM — 50

(24VDC+) 53 TO: 325

50 (24VDC-) TO: 325

REL	DATE	BY:	DESCRIPTION OF ISSUE	APP'D
3	1/22/09	DBM	START UP	DBM
2	12/18/08	JT	AS BUILT	JT
1	12/4/08	DBM	RELEASED FOR APPROVAL	DBM

Designed By: DBM | Drawn By: DBM | Approved By: DBM

TAK

SPINDLE CONTROL PLC BASE IO

PACSYS LLC
65 CONTAINER DRIVE
PLYMOUTH INDUSTRIAL PARK
TERRYVILLE, CT 06786
U.S.A. 06782
(860) 583-6625

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TOLERANCES
· X ± .1
· XX ± .01
· XXX ± .005
ANGLES ± 0° 30'
FRACTIONS ± 1/16

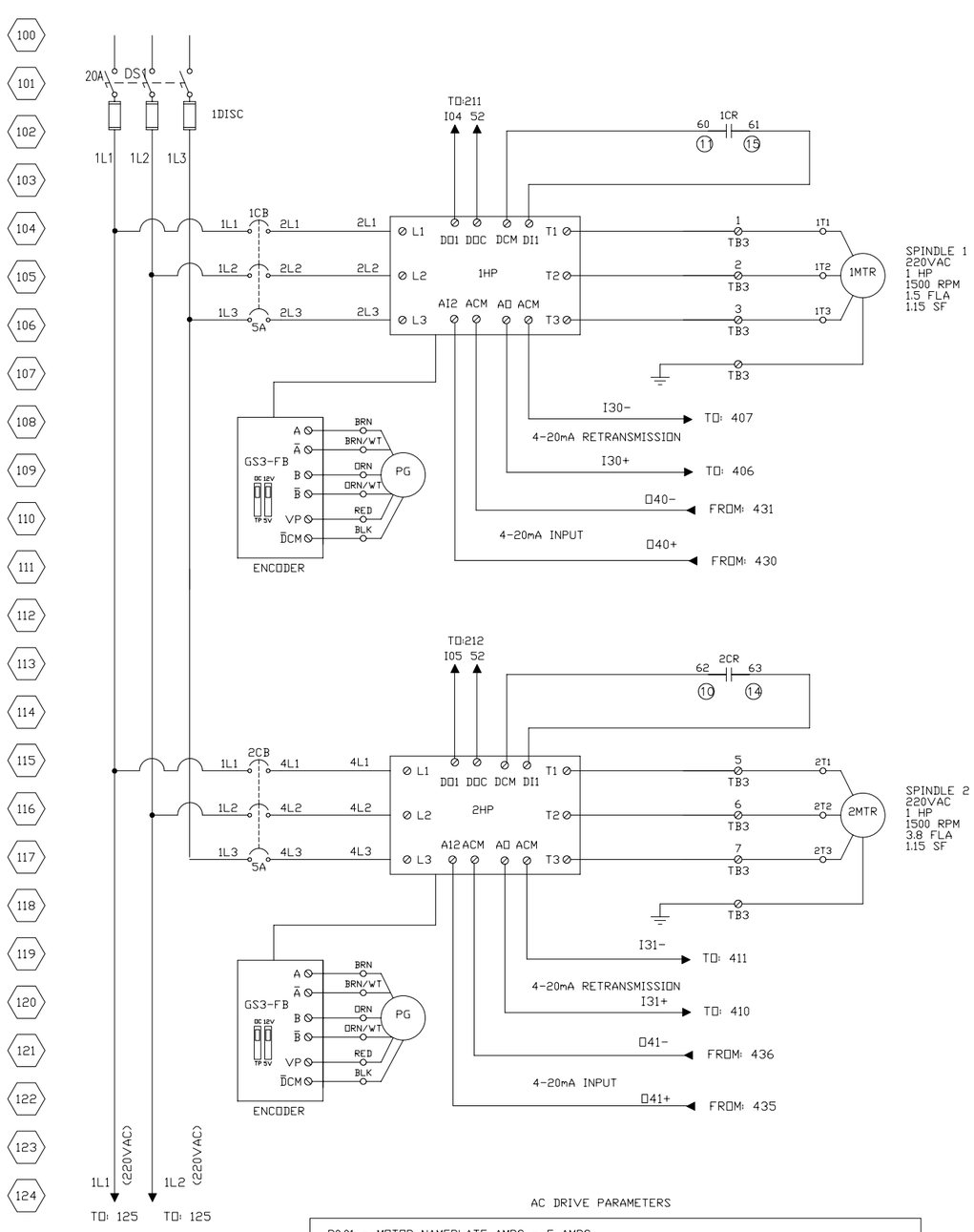
DESTROY ALL PREVIOUS PRINTS

SCALE: NONE

DWG #: 1593_31

SIZE: B

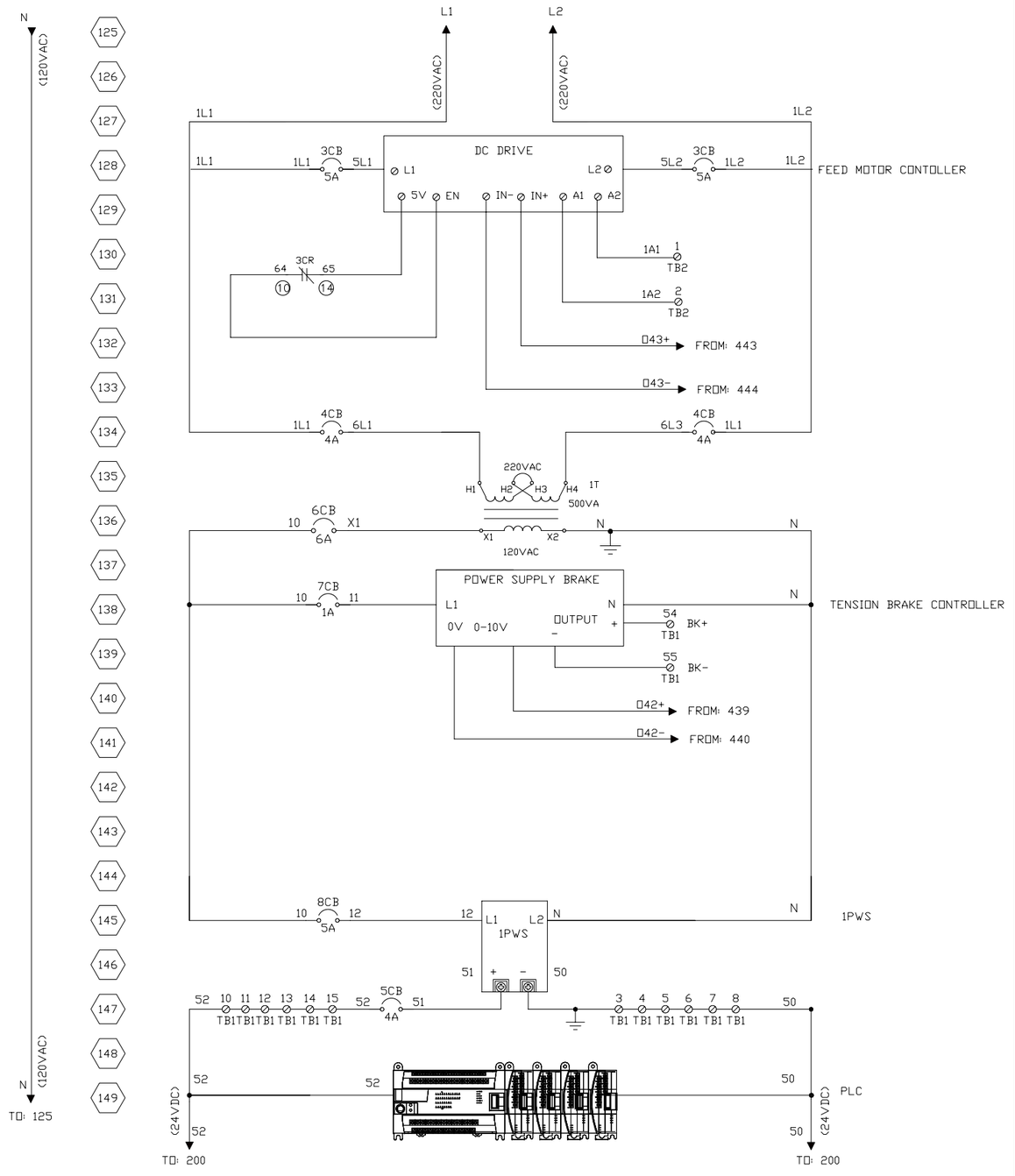
REL: 3



AC DRIVE PARAMETERS

P0.01 = MOTOR NAMEPLATE AMPS = 5 AMPS
P0.03 = MTOR BASE RPM = 1800
P0.04 = RPM MAX = 1800 RPM
P1.00 = STOP METHODS = 01 - COAST TO STOP
P1.01 = ACCELERATION TIME = 1 SEC
P1.02 = DECCELERATION TIME = 1 SEC
P3.00 = SOURCE OF OPERATION COMMAND = 01 - EXTERNAL CONTROL, KEPAD STOP ENABLED
P3.11 = MULTI-FUNCTION OUTPUT TERM 1 RELAY OUT = 01 - AC DRIVE FAULT
P3.16 = DESIRED FREQUENCY = 120 Hz
P4.00 = SOURCE OF FREQUENCY COMMAND = 03 - 4-20MA AI2
P4.12 = ANALOG OUTPUT GAIN = 100%

P7.00 = INPUT TERMINAL FOR PID FEED BACK = 00 - INHIBITED
P7.01 = PV 100% VALUE = 100
P7.02 = PID SETPOINT SOURCE = 03 - AI2 (4-20MA)
P7.20 = PORPORTIONAL CONTROL (GAIN) = 1
P7.21 = INTEGRAL CONTROL (RESET) = 1
P7.22 = DERIVATIVE CONTROL (RATE) = 0.00
P8.00 = USER DEFINED DISPLAY FUNCTION = 00 FOR HZ, = 01 FOR RPM



REL	DATE	BY:	DESCRIPTION OF ISSUE	APP'D
3	1/22/09	DBM	START UP	DBM
2	12/18/08	JT	AS BUILT	JT
1	12/4/08	DBM	RELEASED FOR APPROVAL	DBM

TAK

SPINDLE
CONTROL
PANEL LAYOUT

Designed By: DBM | Drawn By: DBM | Approved By: DBM

PACSYS LLC
65 CONTAINER DRIVE
PLYMOUTH INDUSTRIAL PARK
TERRYVILLE, CT 06786
U.S.A. 06782
(860) 583-6625

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TOLERANCES
. X ±.1
. XX ±.01
XXX ±.005
ANGLES ±0°30'
FRACTIONS ±1/16

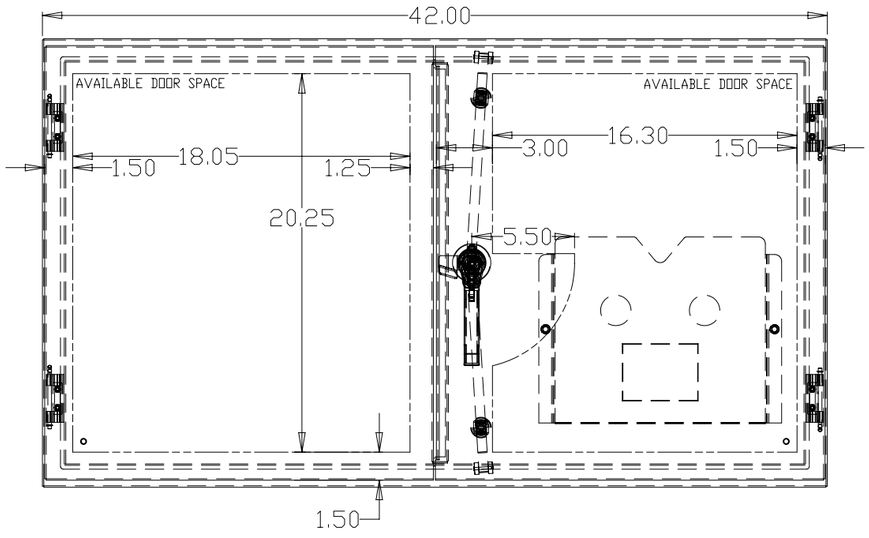
DESTROY ALL PREVIOUS PRINTS

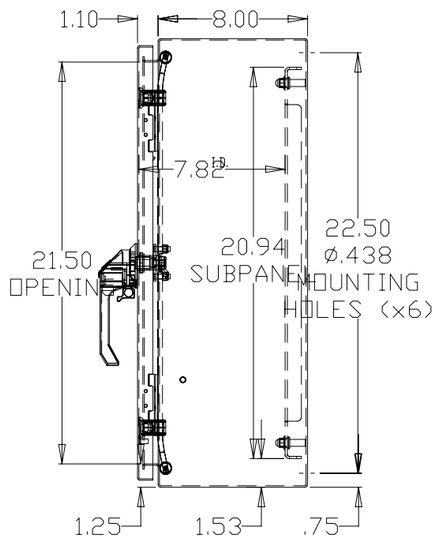
SCALE: NONE

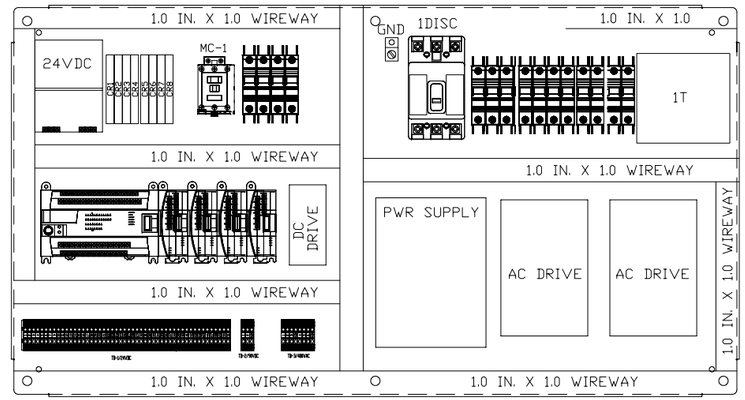
DWG #: 1593_30

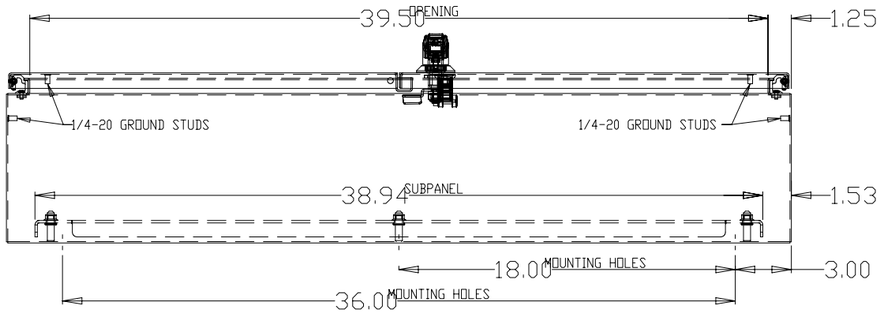
SIZE: B

REL: 3









REL	DATE	BY:	DESCRIPTION OF ISSUE	APP'D
3	1/22/09	DBM	START UP	DBM
2	12/18/08	JT	AS BUILT	JT
1	12/4/08	DBM	RELEASED FOR APPROVAL	DBM

TAK

SPINDLE
CONTROL
PANEL LAYOUT

Designed By: DBM | Drawn By: DBM | Approved By: DBM

PACSYS LLC
65 CONTAINER DRIVE
PLYMOUTH INDUSTRIAL PARK
TERRYVILLE, CT 06786
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TOLERANCES
. X ±.1
. XX ±.01
XXX ±.005
ANGLES ± 0°30'
FRACTIONS ±1/16

DESTROY ALL PREVIOUS PRINTS

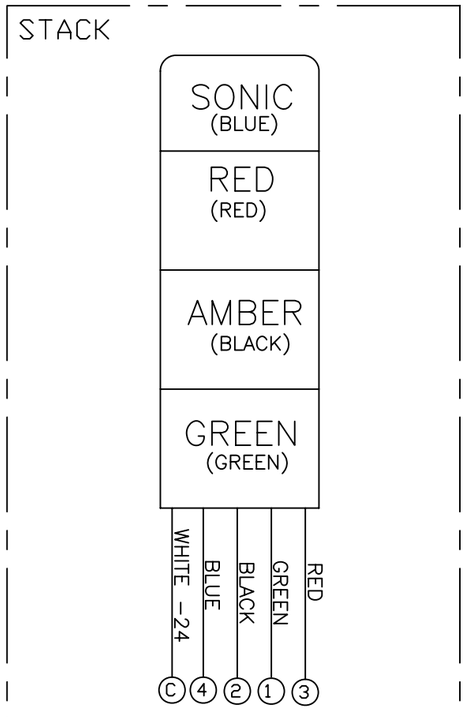
SCALE: NONE

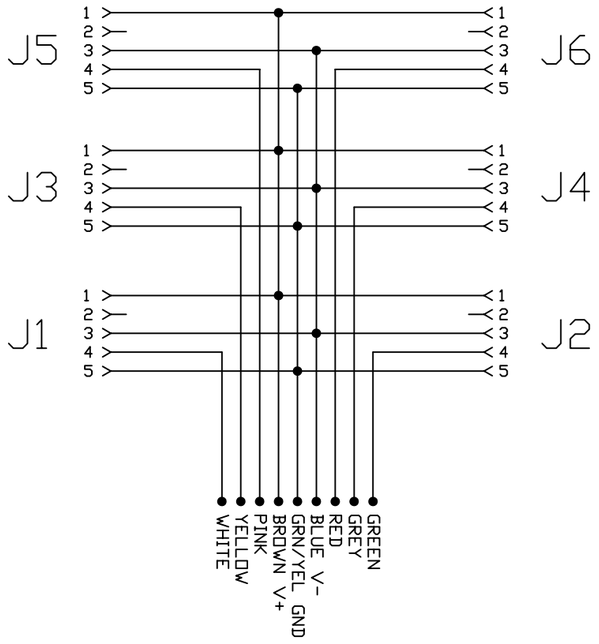
DWG #: 1593_34

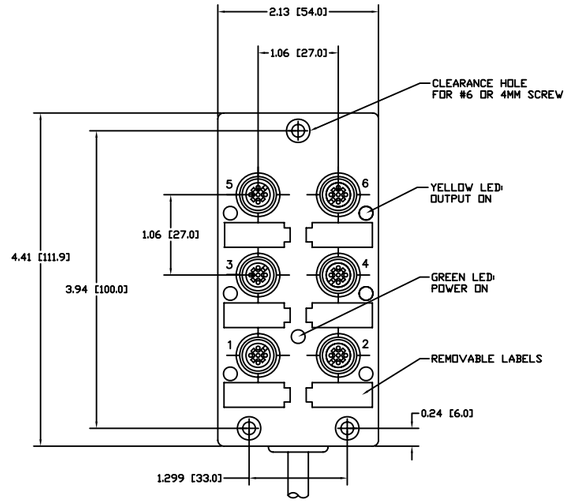
SIZE: B

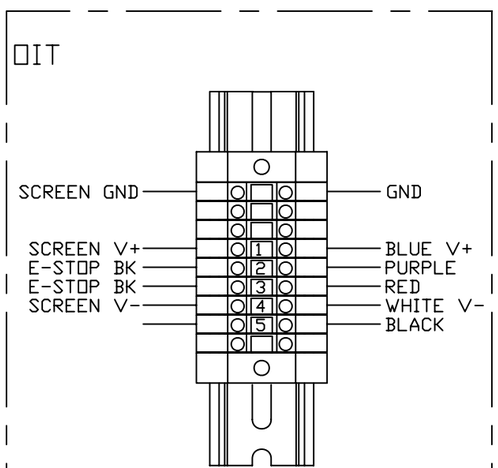
REL: 3

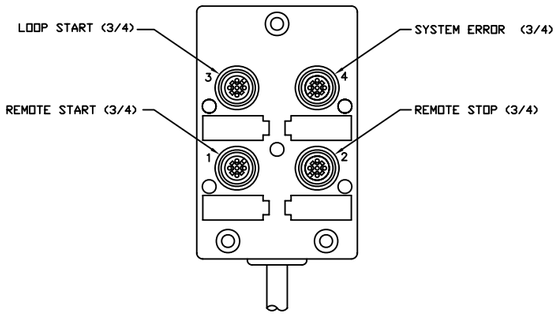
MATERIAL REQ'D.	R.C.



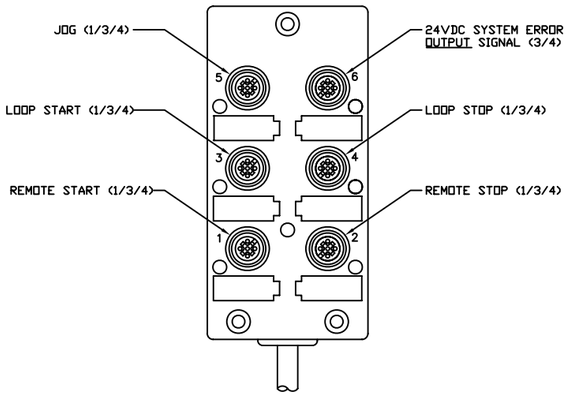




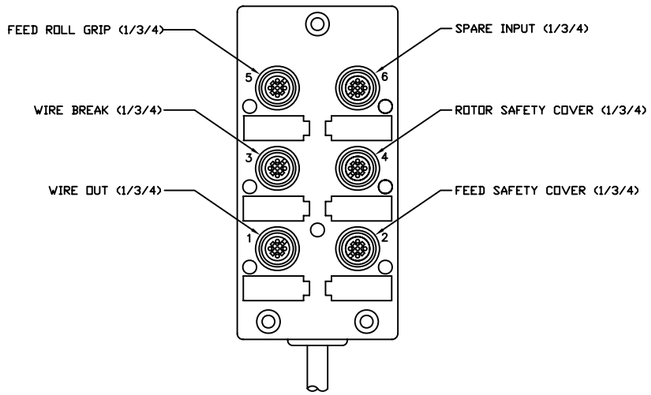




24VDC SIGNAL INPUT (JB-3)



(JB-2) REMOTE INPUT PORTS (1-5)
(JB-2) REMOTE OUTPUT PORT (6)



MAIN INPUT (JB-1)

EuroFast
Female Pins,
Female Threads
or Coupling Nut

5-pin

INPUT PIN #1- POSITIVE/BROWN
INPUT PIN #2- N/A
INPUT PIN #3- GROUND/BLUE
INPUT PIN #4- SIGNAL/BLACK
INPUT PIN #5- SPARE

REV	ECN	CHG BY	DATE
A		GDH	112508

PRECISION ROTARY WIRE STRAIGHTENER

TAK ENTERPRISES

TOLERANCE UNLESS OTHERWISE STATED			
∠ ± 3°	FRACT +/- 1/16		
⊥ ± 0.0003	.X ± .032		
◎ ± 0.0002	.XX ± .015		
⌖ ± 0.0005	.XXX ± .005		
= ± 0.0005	.XXXX ± .0005		

CAD	
DWN GDH	
CHK	
SCALE	
DATE 102907	

DRAWING / PART NO.
9111-601

PART NAME
TABLETOP I/O BLOCK CONNECTIONS

CUSTOMER
TAK